

- **Mass flow register for continuously measuring mass of fluid e.g. oil and liquified gas - has indicator which shows computed value of calculating unit that calculate decrease amount in measurement signal of load cells based on opening and shutting of outflow valves.**

L15 ANSWER 303 OF 354 WPINDEX (C) 2003 THOMSON DERWENT
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PA (TATS-N) TATSUNO MECHATRONICS KK
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PI JP 09066999 A 19970311 (199720)* 4p
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The register includes several inflow valves (4A,4B,4C) installed individually to the inflow tubes (3A,3B,3C) of the containers (2A,2B,2C). Several outflow valves (9A,9B,9C) are installed individually to the outflow tubes (8A,8B,8C) of the containers. The outflow tubes of the containers are connected with a main flowing out tube (10). Three measurement bodies (A,B,C), each having a load cell (1a,1b,1c), weigh each container.

A controller (20) is connected with the load cell of each measurement body and the inflow and outflow valves. The inflow and outflow valves are opened and closed by the controller. A valve control unit selectively open the outflow valves of the containers. The amount of decrease in the measurement signal of the load cells based on the opening and shutting of the outflow valves is computed by a calculating unit. The computed value of the calculating unit is output to an indicator.

ADVANTAGE - Enables accurate measurement after condition of load cells are stabilised. Corresponds amount of liquid discharged from outflow tubes with amount of liquid introduced from inflow tubes.

Dwg.1/3

- Automatic operation control system for solution concentration apparatus - controls amount of concentration liquid supplied to flask based on its weight, and supply is stopped when abnormal supply of concentration liquid is detected.

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NOVELTY - The weight of the concentrated liquid in the flask (3) is obtained by analyzing output of load cell (2) and amount of concentration liquid supplied to it. When the obtained weight deviates from a predetermined range, a supply regulator (7) regulates the amount of liquid supplied to the flask so that its weight is maintained within the range.

DETAILED DESCRIPTION - When abnormal supply of concentration liquid is detected, the supply regulator stops the supply of concentration liquid to the flask by sending an abnormal supply stop signal to a switching valve (5). The load cell output shows the total weight of the flask containing the concentrated liquid and its support (9). Also, when the amount of collected solvent by concentration exceeds a predetermined range, the supply of concentration liquid to the flask is stopped and the collected solvent is removed from the collection container by the solvent removal system automatically.

USE - For solution concentration apparatus.

ADVANTAGE - Since the whole concentration operation is monitored and controlled automatically, the operator's contact with concentrated liquid is reduced and concentration work time is shortened. DESCRIPTION OF

DRAWING(S) - The figure shows the outline drawing of the automatic concentration apparatus. (2) Load cell; (3) Flask;

(5) Switching valve; (7) Supply regulator; (9) Support.

Dwg.1/3